

Wizard

PRODUCT DATA SHEET



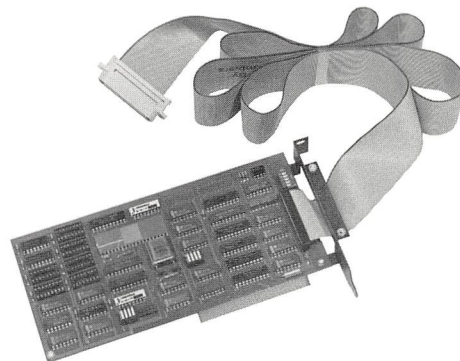
WIZARD-SPOOLER BUFFERED PRINTER CONTROLLER FOR USE WITH THE IBM-PC*

With a Wizard-Spooler, you can use your PC while the printer is printing. That's because its "character buffer" quickly receives your job and then slowly meters it out to your printer at the maximum rate the printer can accept. All the time the printer is printing, you can be entering a new job into your computer. The Wizard-Spooler is made by Wesper-Microsystems a subsidiary of WESPERCORP . . . the world's largest independent manufacturer of computer peripheral controllers for minicomputers such as IBM, DEC, Data General and Perkin Elmer.

The Wizard-Spooler using the IBM-PC printer will accept a full 64K bytes of data in less than a minute and transfer it to the printer for 20 minutes of printout. This reduces your waiting time by a factor of TWENTY!! The spooler uses data stream stop-and-start control for maximum printer speed. On the Spooler, two 64K RAM chips; provide the standard 16K bytes of character buffering. This can be optionally doubled to 32K bytes or quadrupled to 64K bytes by plugging additional RAM chips into empty sockets on the card.

The Wizard-Spooler is remarkable for its low price, advanced design, and its ultra-reliable construction. All component leads, except for the RAMs, are soldered directly into the board for the most reliable component interconnections. Low power consumption by the Wizard-Spooler keeps things cool and minimizes the load on the power supply. This is made possible by Wesper's custom buffer-controller integrated circuit.

The Wizard-Spooler provides a transparent link between your computer and printer, and is compatible with the IBM Disk Operating System plus most IBM-PC software. It is also compatible with most expansion boards for the IBM-PC computer.



Two versions of the Wizard-Spooler are offered, a Parallel Printer Controller, and a Parallel/Serial Printer Controller. The Parallel version of the Wizard-Spooler comes with a five-foot long cable with a Centronics type connector. The serial line is terminated with a female DB-25 for your RS-232 Printer cable. The Parallel/Serial version lets you switch from parallel to serial so you can run either of TWO printers from your PC. For instance, a high-speed dot matrix in addition to a letter-quality daisy wheel printer.

The Wizard-Spooler Owner's Reference Manual tells you how to enjoy and maximize all the spooler benefits. Self-Test of the Buffer Controller and RAM chips is built-in. You also get Wesper Microsystems Exclusive Two-Year Factory-replacement Warranty on your Wizard-Spooler.

Just like magic, your PC can become a two-for-one computer, printing one job while working on another, and the price is right, only \$289 for the Parallel-only version, and \$349 for the Parallel/Serial version.

Questions? Call us toll free at (800) 854-8737 or in California, call (714) 850-1666.

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*Registered trademark of IBM

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WIZARD-BPO PARALLEL OUTPUT BUFFER CARD

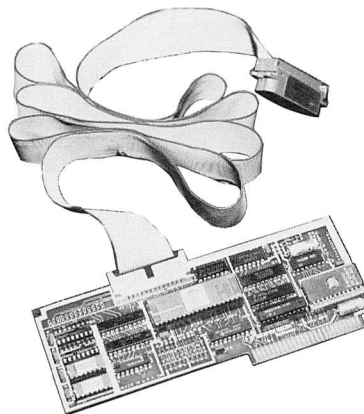
With a Wizard-BPO, you will never again have to wait for your printer to finish printing a job before you can attack your next project. That's because the Wizard-BPO allows you to employ your Apple II or Apple II Plus on a new task during the time the printer is printing the previous one. The Wizard-BPO is made by WesperMicro Systems, a subsidiary of WESPERCORP . . . the biggest name in computer electronic peripherals.

Wait! That's not all. The Wizard-BPO unleashes all of your printer's built-in capabilities . . . hi-res screen dump . . . and control of text formatting and page indexing. A Personality ROM installed on your Wizard-BPO tailors the operation to your particular printer.

The latest 64K bit RAM chips are used to provide the standard 16K bytes of character buffering. This capacity can be doubled to 32K bytes of character buffering by simply plugging two additional RAM chips into empty sockets on the card.

Software compatibility is no problem. You'll be able to run your Wizard-BPO with most Apple II expansion boards and with most software. The Wizard-BPO interfaces directly with most Apple II operating systems, including Applesoft BASIC, Apple Integer BASIC, the Apple PASCAL system, CP/M, and many others.

The Wizard-BPO utilizes a custom buffer-controller integrated circuit, a custom address-decoder integrated circuit and other advanced microcircuits. These accept data at the Apple's rapid transfer rate, store the data and feed it to your printer at the rate your printer can accept.



The Wizard-BPO is remarkable both for its advanced design and ultra-reliable construction. Component leads, except for the RAMs and the firmware ROM, are all soldered directly into the board for the most reliable component interconnections. Low power consumption by the Wizard-BPO also keeps things cool while presenting a minimum load on the power supply.

The Wizard-BPO comes complete with a five-foot long cable that plugs into your printer, plus an Owner's Reference Manual that tells you how to enjoy all the BPO benefits. You also get a full two-year factory-replacement Warranty from WesperMicro Systems on your Wizard-BPO.

Just like magic, your Apple II can become a two-for-one computer . . . printing one job while accepting another . . . and the suggested retail price is right, only \$179.

Questions? Call us at 714-850-1666, or outside California call toll free at 800-854-8737.

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WIZARD-BPO

BUFFERED PRINTER OUTPUT CARD

WIZARD-BPO OPTIONS

Buffer Size Option

To expand your Wizard-BPO to 32K bytes, simply add two MCM6664L25 RAM integrated circuits to the empty sockets. The Wizard BPO will automatically reconfigure upon initialization.

Reset Jumper Option

Normally, if the reset key is pressed, the buffer is reset along with the other board functions. If a reset is required while printing is in progress, the remainder of the information to be printed would be lost. This effect of the reset key on the Wizard-BPO card can be disabled by disconnecting the E3-E4 jumper in the upper right-hand corner of the Wizard-BPO board (pull off the jumper device from both pins and place on one pin only). You'll want to do this if you must use the reset key while the printer is busy printing.

Line Feed Jumper Option

Normally, if a carriage return is received from a BASIC program by the Wizard-BPO, a line feed is added to the data sent to the printer. If your program or your printer automatically inserts line feeds, these added line feeds from the Wizard-BPO card can be disabled by disconnecting the E1-E2 jumper located just below U9 in the center of the Wizard-BPO board (pull off the jumper device from both pins and place on one pin only). This jumper normally has no effect for programs written in the PASCAL language or in software that runs under CP/M.

PRINTER OPERATING COMMANDS

The commands listed below may be issued under Applesoft BASIC, Integer BASIC or the system monitor. When using CP/M, Apple PASCAL, or various system application software, the printer is automatically activated. Commands may be issued to the printer by several methods, depending upon your application.

To **INITIATE** the Wizard-BPO Buffered Printer Output card:

From the system monitor:

PR#n (when DOS is active) or
nCTRL-P (when DOS is inactive)
where "n" equals the slot number of the Wizard-BPO card

From Applesoft or Integer BASIC:

PR#n (where "n" equals the slot number of the Wizard-BPO card)

From machine-level language:

LDY \$36
LDA #\$00
JSR Cn00
STY \$36

To output characters from **MACHINE-LEVEL** language once initiation is complete:

LDA #\$hx (where hx = hex code for character)
JSR Cn02

To **TURN OFF** the Wizard-BPO Buffered Printer Output card:

PR#0
O-CTRL-P (when using the system monitor)
PRINT "CTRL-D PR#0" (when using DOS)

To **CLEAR** the buffer and **TURN OFF** the Wizard-BPO card:

Press the Reset key if you left the reset option intact.

This reset function can be disabled by disconnecting the E3-E4 jumper on the Wizard-BPO board (pull off jumper from both pins and place on one pin only). You'll want to do this if you must use the reset key while the printer is busy printing.

STANDARD TEXT MODE COMMANDS

The WesperMicro Systems Wizard-BPO Buffered Printer Output card performs many useful text formatting functions. These functions can be initiated from the keyboard and can also be specified from your operating program. Each function consists of a control character followed by one or more characters to specify the formatting function desired.

Command	Function
CTRL-I H	Allows the HIGH-ORDER bit to be output to the printer. This operation has no effect on most printers. However, on the Epson MX-80, the block graphics are enabled by the high-order bit.
CTRL-I X	Turns OFF the HIGH ORDER bit to the printer.
CTRL-I I	Enables simultaneous output to PRINTER AND SCREEN .
CTRL-I J	Enables PRINTER ONLY (Disables Output to the screen).
CTRL-InN	Sets LINE LENGTH to "n" characters from the left edge of the paper.
CTRL-InL	Sets LEFT MARGIN to "n" characters from the left edge of the paper.
CTRL-InR	Sets RIGHT MARGIN to "n" characters from the right edge of the paper. The line will end with the first space after the right margin, but before the end of the line set by the line length command.
CTRL-InP	Sets PAGE LENGTH to "n" lines; the printer will print the number of lines specified and then skip 6 lines. If the page length is properly specified, then the perforations will be skipped over.
CTRL-O	Turns OFF command function recognition. Enters Transparent mode.
CALL 49392 +256*n	Turns ON the command function recognition, if previously disabled (n identifies slot where card is inserted).

GRAPHICS MODE

The Wizard-BPO Buffered Printer output card provides graphics functions on those printers capable of handling them. The graphics functions require the proper Wizard-BPO Personality ROM in order to provide the correct command sequences to activate your specific printer's graphics operations and bit manipulation to provide the graphics image.

GRAPHICS COMMANDS

Command	Function
CTRL-I G xx.	ENABLES GRAPHICS function specified by one or more graphics command string characters (xx...). Do not type any spaces between CTRL-I and the command characters.
Return	Signals the Wizard-BPO that the graphics command sequence is complete and the graphic mode is to be run.

GRAPHICS COMMAND STRING FUNCTIONS

Character	Function
None	Prints the PRIMARY HI-RES SCREEN, CENTERED on the paper.
D	Prints DOUBLE SIZE . (Use with the rotate "R" function on smaller printers.)
I	Prints INVERTED VIDEO (white on screen equals white on paper, with the background filled in).
L	Moves image to LEFT MARGIN .
R	ROTATES the image clockwise 90 degrees.
2	Prints the SECONDARY HI-RES SCREEN , instead of primary.

ELECTRICAL SPECIFICATIONS

Power Requirements: 5V

Slot Compatibility: Apple II and Apple II Plus bus compatible

Interface Compatibility: Parallel Standard, Centronics

Wizard

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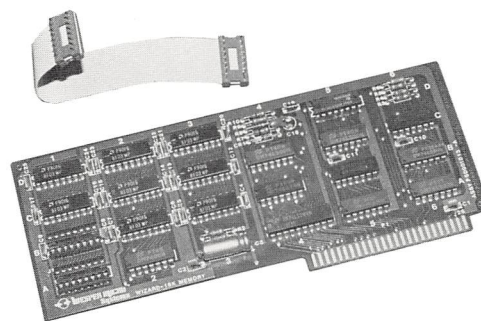
WIZARD-16K

16K RAM APPLE MEMORY CARD

Improve your memory with the WIZARD-16K. Here's a 16K RAM Apple Memory card that will give your 48K Apple II or Apple II Plus all the directly accessible add-on memory it can handle. It's made by Wesper Microsystems, a subsidiary of WESPERCORP....the biggest name in computer electronic peripherals.

The WIZARD-16K is fully compatible with programs that can take advantage of an extra 16K of memory—programs such as Personal Software's VISICALC, On-Line System's GENERAL MANAGER, and On-Line System's MEMORY MANAGEMENT II. It also interfaces with all Z-80 cards to give you CP/M. And the WIZARD-16K will accommodate Applesoft Basic, Integer Basic, Apple Pascal System, Basic-80, Cobol-80, Fortran-80, and more. Just plug it in and you'll have a 56K system that will give you all the features of an Apple Language Card (except Autostart ROM) and will let you take care of those big jobs that require so much more memory.

Solidly built, with all leads soldered directly to its main board, the WIZARD-16K is designed to reduce the problems you may have had with other boards. With its low power consumption, the WIZARD-16K gives you cool and reliable operation. As with other Wesper Microsystems' products, the WIZARD-16K comes with a full 2-year warranty.



With the WIZARD-16K, you'll get an extra 16K bytes of Random Access Memory for less money than any other 16K card made. And you'll get a detailed manual that will tell you everything you need to know about the WIZARD-16K—how to set it up and how to use it. WIZARD-16K Price \$149.00

Your Apple may remember a lot, but it will remember even more with a WIZARD-16K memory card.

Questions? Call us at 714-850-1666, or outside California call toll free at 800-854-8737.

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Apple II, Apple II Plus, Apple Language Card, Applesoft Basic, Integer Basic, and Apple Pascal System are trademarks of Apple Computers
Z-80 is a trademark of Zilog
CP/M is a trademark of Digital Research
Basic-80, Fortran-80, and Cobol-80 are trademarks of MICROSOFT

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WIZARD-80

80-COLUMN INTERFACE CARD

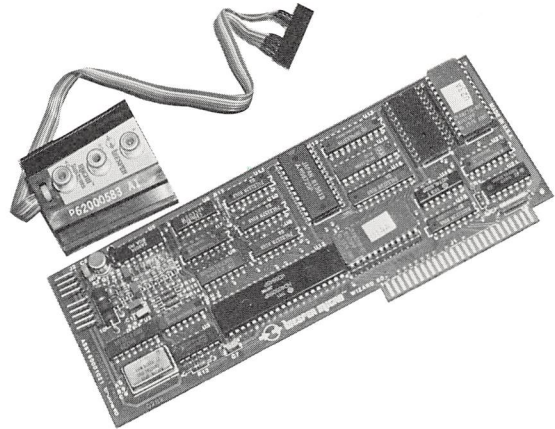
The WIZARD-80 is ready to cast its spell on your Apple II or Apple II Plus. This wizard is an 80-Column Interface card that will give you 80-Column viewing for your video display terminal. Never again will you be confined to a mere 40 columns. It's made by Wesper Microsystems, a subsidiary of WESPERCORP., the biggest name in computer electronic peripherals.

The WIZARD-80 will let you see what you will get when you type in an 80-Column format. The standard Control-S entry will let you stop and start listings when you're editing. And it displays your text on the screen while it's being printed.

This superb card offers you software control over 40 or 80 column display on a single monitor. This is a built-in feature with the WIZARD-80, not an extra-cost item. If you activate the card with a "PR #3", a "3-Control-P", or the use of a CP/M or Pascal disk, you'll even be able to get your 80-Column format without the need of a switch!

When in the 80-Column mode, you'll have two separate set-ups available. You may select an 18 line display or a full 24 line format. You'll also get full upper and lower case characters with full descenders. The WIZARD-80 uses a 7 X 9 character dot matrix (an optional 7 X 12 matrix size is available also). And you'll even get inverse video capability built right into the card—it's standard.

The WIZARD-80 is completely compatible with all CP/M based programs. That includes such programs as MICROPRO's WORD STAR and CALC STAR. And you can even operate the



80-Column VIDEX version of SOUTHEASTERN SOFTWARE's DATA CAPTURE 4.0. The WIZARD-80 can accommodate MICROSOFT's SOFTCARD, most word processors, micro modems, and prom programmers.

Solidly built, with all leads soldered directly to its main board, the WIZARD-80 is designed to reduce the problems you may have had with other boards. With its low power consumption, the WIZARD-80 gives you cool and reliable operation. As with other Wesper Microsystems' products, the WIZARD-80 comes with a full 2-year warranty.

The WIZARD-80 has it all. And there's something else you'll like too. The WIZARD-80 has the lowest price tag of any 80-Column card on the market today!

The price is right and the features are complete. It's magic—the magic of the WIZARD-80. Suggested retail price \$295.00.

Questions? Call us at 714-850-1666, or outside California call toll free at 800-854-8737.

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Softcard is a trademark of MICROSOFT
CP/M is a trademark of DIGITAL RESEARCH

WIZARD-80

80-COLUMN INTERFACE CARD

WIZARD — 80 COMMANDS FROM BASIC LANGUAGE

The Wizard-80 provides your Apple II or Apple II Plus computer with an 80-column display format.

FEATURES

- Built-in 40/80 column video switch
- Provides upper/lower case letters
- Provides 80-column graphics characters
- Inverse video by character
- Up to 256 characters
- Supports BASIC, PASCAL, CP/M

BASIC SCREEN COMMANDS SUPPORTED

- HOME
- INVERSE
- NORMAL
- CALL-936
- VTAB
- HTAB (to 40 columns)¹

PASCAL, CP/M COMMANDS

The Wizard-80 supports the functions and control codes provided by PASCAL and CP/M operating systems.

HARDWARE STRAP OPTIONS

- Inverse/normal video with 128 characters.
- Normal video with 256 characters.
- Optional second character generator can be inserted for second set of 128 characters.

INTERFACE REQUIREMENTS

Power: +5V, +12V, -12V, -5V
Slot: Slot 3 only.

NOTES:

1. Cursor to XY can be used anywhere.
2. Requires Keyboard Enhancer.
3. Graphics and special characters.

Functions	Keyboard Inputs	Program Outputs
SCREEN FUNCTIONS:		
Clear Screen and Home Cursor	CTRL-L	CHR\$(12)
	ESC-@	--
Clear To End of Screen	--	CHR\$(11)
	ESC-F	--
Clear To End of Line	CTRL-SHIFT-M	CHR\$(29)
	ESC-E	--
Carriage Return	CTRL-M	CHR\$(13)
Copy To Buffer and Advance Cursor	CTRL-U	--
	→	--
Start/Stop Scroll	CTRL-S	--
MODE CHANGES:		
24 Line Screen	CTRL-Z 0	CHR\$(26) CHR\$(48)
18 Line Screen	CTRL-Z 1	CHR\$(26) CHR\$(49)
Non-Inverted video (Std. Char. Set)	CTRL-N	CHR\$(14)
	CTRL-Z 2	CHR\$(26) CHR\$(50)
Inverted video (Alt. Char. Set)	CTRL-O	CHR\$(15)
	CTRL-Z 3	CHR\$(26) CHR\$(51)
80 Column Display	ESC-8	--
40 Column Display	ESC-4	--
Blinking Cursor	ESC-G	--
Non-Blinking Cursor	ESC-H	--
Minimally Responsive	ESC-W	--
Fully Responsive	ESC-V	--
MISCELLANEOUS FUNCTIONS:		
Sound Beeper	CTRL-G	CHR\$(7)
Shift Toggle	CTRL-A	--
CURSOR MOVEMENT:		
Cursor Left	CTRL-H	CHR\$(8)
	←	CHR\$(8)
	ESC B	--
	ESC J	--
Cursor Right	CTRL-SHIFT-L ²	CHR\$(28)
	ESC A	--
	ESC K	--
Cursor Up	CTRL-SHIFT-O ²	CHR\$(31)
	ESC D	--
	ESC I	--
Cursor Down	CTRL-J	CHR\$(10)
	ESC C	--
	ESC M	--
Cursor Home	CTRL-Y	CHR\$(25)
Cursor To XY	CTRL-SHIFT-N (X)	CHR\$(30)
	(Y)	CHR\$(X+32) CHR\$(Y+32)
DISPLAY SPECIAL CHARACTERS:		
Display Character N ³	CTRL-Z CTRL-(N)	CHR\$(26) CHR\$(N)

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WIZARD-SOB SERIAL OUTPUT BUFFER CARD

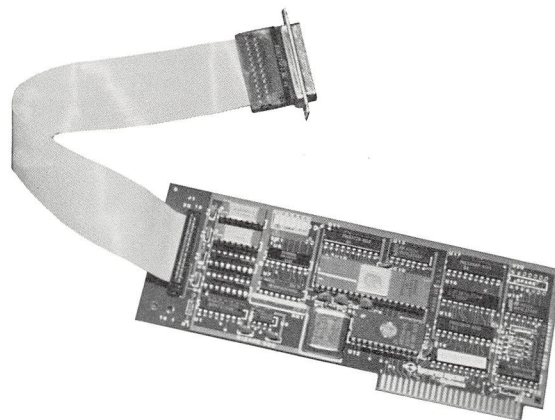
With a Wizard-SOB, you will never again have to wait for your printer to finish printing a job before you can attack your next project. That's because the Wizard-SOB allows you to employ your Apple II or Apple II Plus on a new task during the time the printer is printing the previous one. The Wizard-SOB is made by WesperMicro Systems, a subsidiary of WESPERCORP . . . the biggest name in computer electronic peripherals.

Wait! That's not all. The Wizard-SOB unleashes all of your printer's built-in capabilities . . . hi-res screen dump . . . and control of text formatting and page indexing. A Personality ROM installed on your Wizard-SOB tailors the operation to your particular printer.

The latest 64K bit RAM chips are used to provide the standard 16K bytes of character buffering. This capacity can be doubled to 32K bytes of character buffering by simply plugging two additional RAM chips into empty sockets on the card.

Software compatability is no problem. You'll be able to run your Wizard-SOB with most Apple II expansion boards and with most software. The Wizard-SOB interfaces directly with most Apple II operating systems, including Applesoft BASIC, Apple Integer BASIC, the Apple PASCAL system, CP/M, and many others.

The Wizard-SOB utilizes a custom buffer-controller integrated circuit, a custom address-decoder integrated circuit and other advanced microcircuits. These accept data at the Apple's rapid transfer rate, store the data and feed it to your printer at the rate your printer can accept.



The Wizard-SOB is remarkable both for its advanced design and ultra-reliable construction. Component leads, except for the RAMs and the firmware ROM, are all soldered directly into the board for the most reliable component interconnections. Low power consumption by the Wizard-SOB also keeps things cool while presenting a minimum load on the power supply.

The Wizard-SOB comes complete with a one-foot long cable plus an Owner's Reference Manual that tells you how to enjoy all the SOB benefits. You also get a full two-year factory-replacement Warranty from WesperMicro Systems on your Wizard-SOB. Contact your dealer for information on the cable your printer requires.

Just like magic, your Apple II can become a two-for-one computer . . . printing one job while accepting another . . . and the suggested retail price is right, only \$249.

Questions? Call us at 714-850-1666, or outside California call toll free at 800-854-8737.

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WIZARD-SOB SERIAL OUTPUT BUFFER CARD

WIZARD-SOB OPTIONS

Buffer Size Option

To expand your Wizard SOB to 32K bytes, simply add two MCM6664L25 RAM integrated circuits to the empty sockets. The Wizard-SOB will automatically reconfigure upon initialization.

Reset Option

Normally, if the reset key is pressed, the buffer is reset along with the other board functions. If a reset is required while printing is in progress, the remainder of the information to be printed would be lost. This effect of the reset key on the Wizard-SOB card can be disabled by opening the appropriate switch on the Wizard-SOB board. You'll want to do this if you must use the reset key while the printer is busy printing.

Line Feed Option

Normally, if a carriage return is received from a BASIC program by the Wizard-SOB, a line feed is added to the data sent to the printer. If your program or your printer automatically inserts line feeds, these added line feeds from the Wizard-SOB card can be disabled by opening the appropriate switch on the Wizard-SOB board. This jumper normally has no effect for programs written in the PASCAL language or in software that runs under CP/M.

PRINTER OPERATING COMMANDS

The commands listed below may be issued under Applesoft BASIC, Integer BASIC or the system monitor. When using CP/M, Apple PASCAL, or various system application software, the printer is automatically activated. Commands may be issued to the printer by several methods, depending upon your application.

To **INITIATE** the Wizard-SOB Buffered Printer Output card:

From the system monitor:

PR#n (when DOS is active) or
nCTRL-P (when DOS is inactive)
where "n" equals the slot number of the Wizard-SOB card

From Applesoft or Integer BASIC:

PR#n (where "n" equals the slot number of the Wizard-SOB card)

From machine-level language:

LDY \$36
LDA #\$00
JSR Cn00
STY \$36

To output characters from **MACHINE-LEVEL** language once initiation is complete:

LDA #\$hx (where hx = hex code for character
JSR Cn02

To **TURN OFF** the Wizard-SOB Buffered Printer Output card:

PR#0
O-CTRL-P (when using the system monitor)
PRINT "CTRL-D PR#0" (when using DOS)

To **CLEAR** the buffer and **TURN OFF** the Wizard-SOB card:

Press the Reset key if you left the reset option intact.

This reset function can be disabled by opening the appropriate switch on the Wizard-SOB board. You'll want to do this if you must use the reset key while the printer is busy printing.

STANDARD TEXT MODE COMMANDS

The WesperMicro Systems Wizard-SOB Buffered Printer Output card performs many useful text formatting functions. These functions can be initiated from the keyboard and can also be specified from your operating program. Each function consists of a control character followed by one or more characters to specify the formatting function desired.

Command	Function
CTRL-I H	Allows the HIGH-ORDER bit to be output to the printer. This operation has no effect on most printers.
CTRL-I X CTRL-I I	Turns OFF the HIGH ORDER bit to the printer. Enables simultaneous output to PRINTER AND SCREEN .
CTRL-I J	Enables PRINTER ONLY (Disables Output to the screen).
CTRL-InN	Sets LINE LENGTH to "n" characters from the left edge of the paper.
CTRL-InL	Sets LEFT MARGIN to "n" characters from the left edge of the paper.
CTRL-InR	Sets RIGHT MARGIN to "n" characters from the right edge of the paper. The line will end with the first space after the right margin, but before the end of the line set by the line length command.
CTRL-InP	Sets PAGE LENGTH to "n" lines; the printer will print the number of lines specified and then skip 6 lines. If the page length is properly specified, then the perforations will be skipped over.
CTRL-O	Turns OFF command function recognition. Enters Transparent mode.
CALL 49392 +256*n	Turns ON the command function recognition, if previously disabled (n identifies slot where card is inserted).

GRAPHICS MODE

The Wizard-SOB Buffered Printer output card provides graphics functions on those printers capable of handling them. The graphics functions require the proper Wizard-SOB Personality ROM in order to provide the correct command sequences to activate your specific printer's graphics operations and bit manipulation to provide the graphics image.

GRAPHICS COMMANDS

Command	Function
CTRL-I G xx	ENABLES GRAPHICS function specified by one or more graphics command string characters (xx...). Do not type any spaces between CTRL-I and the command characters.
Return	Signals the Wizard-SOB that the graphics command sequence is complete and the graphic mode is to be run.

GRAPHICS COMMAND STRING FUNCTIONS

Character	Function
None	Prints the PRIMARY HI-RES SCREEN, CENTERED on the paper.
D	Prints DOUBLE SIZE . (Use with the rotate "R" function on smaller printers.)
I	Prints INVERTED VIDEO (white on screen equals white on paper, with the background filled in).
L	Moves image to LEFT MARGIN .
R	ROTATES the image clockwise 90 degrees.
2	Prints the SECONDARY HI-RES SCREEN , instead of primary.

ELECTRICAL SPECIFICATIONS

Voltage Requirements: +5, +12V, -12V
Slot Compatibility: Apple II and Apple II Plus bus compatible
Interface Compatibility: RS 232-C